



Prepared by group 7

# Group Project

## Ride Booking Management System

17 December 2024



# *Team Members*

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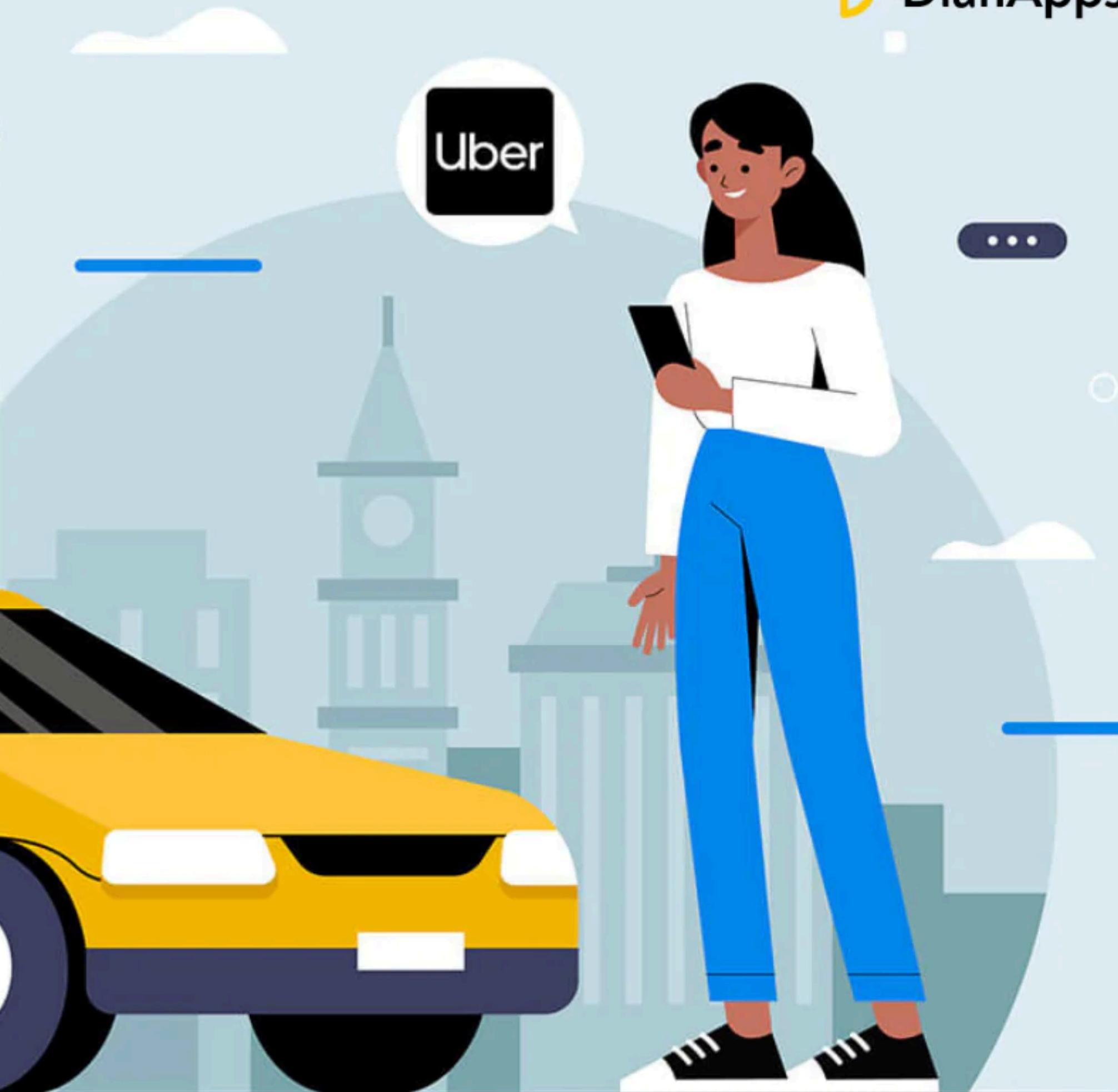
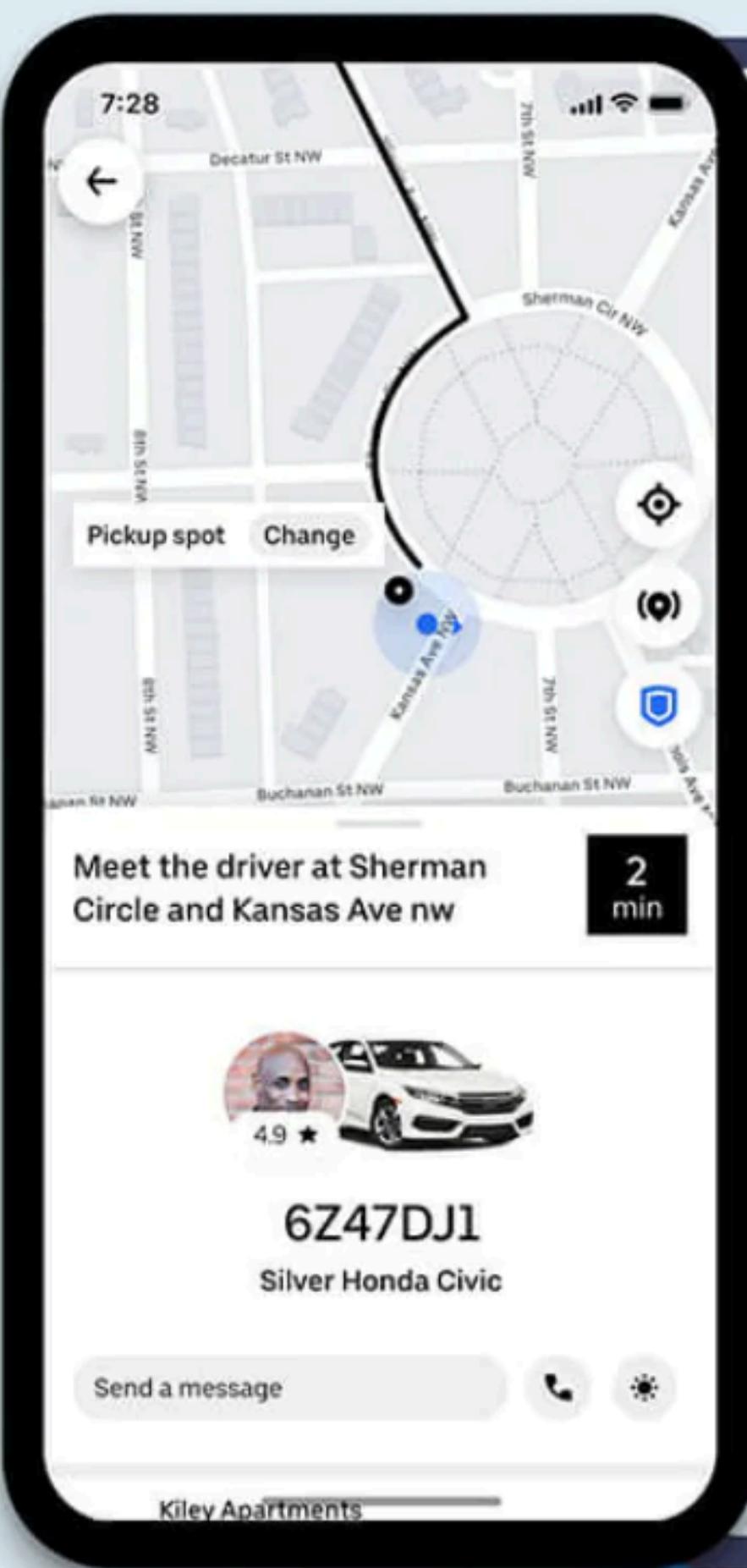


# *Introduction*



We have covered the key aspects of modern software development, including frontend design, backend setup, API creation, security measures, CI/CD Pipelines and version control workflows, to build a reliable Ride Booking Management Application.





# *Problem Statement*

- Problem: “Manage and optimize Uber ride bookings by predicting ride demand and efficient ride allocations”.
- The goal is to improve the experience for both riders and drivers while maximizing platform efficiency and profitability.

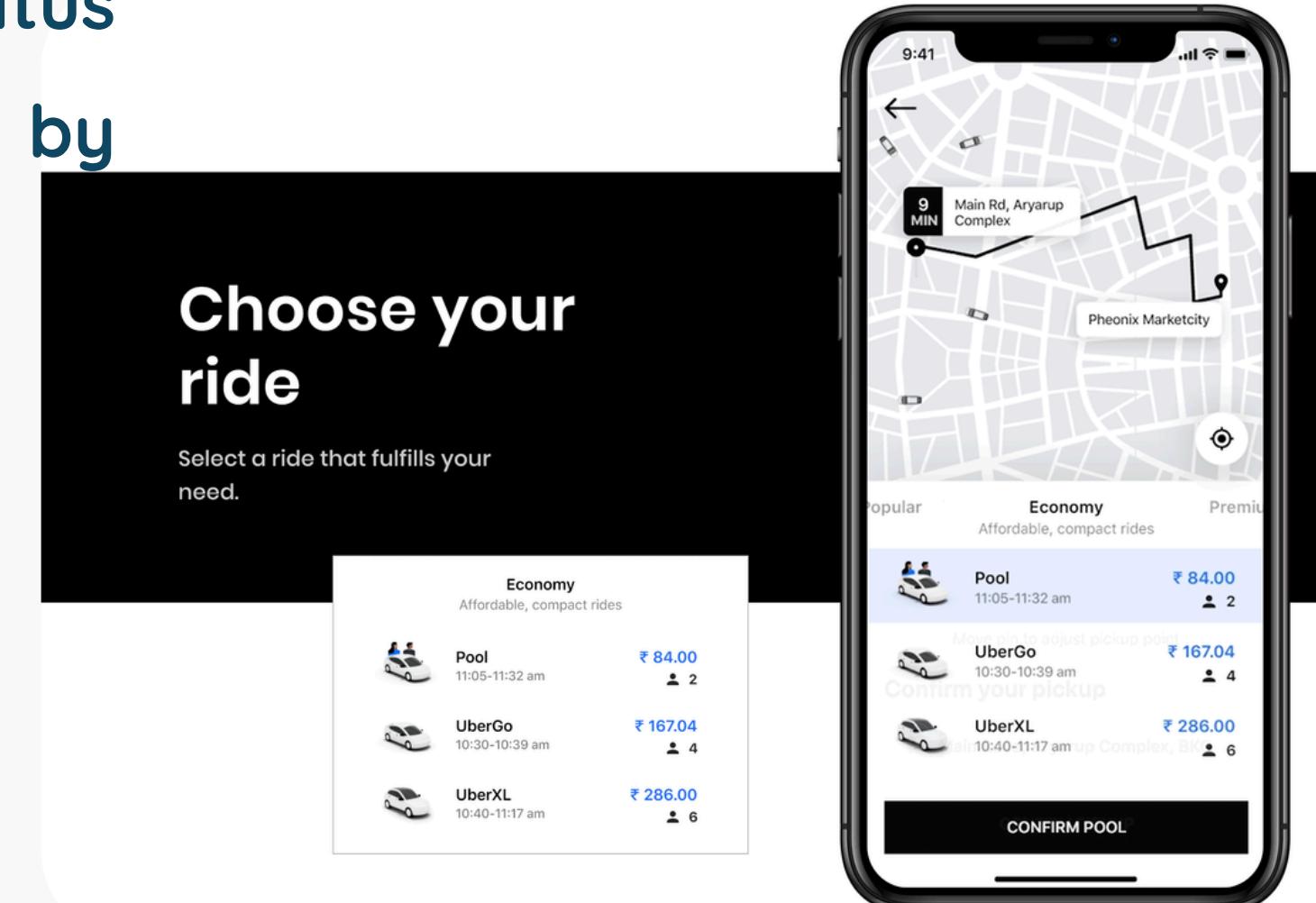
Question: How can ride bookings and allocations be optimized?

Solution: Involves analyzing real-time demand, route optimization, and surge pricing based on factors like – location, time, and availability.



# UX Design

- Designed a user-friendly interface for booking management.
- Implemented CRUD operations for rides, users, and driver profiles. like book ride, cancel ride, add ratings
- Integrated features for filtering rides by status (upcoming, ongoing, completed) and sorting data by fare, time, and distance.



# How does Application Work?



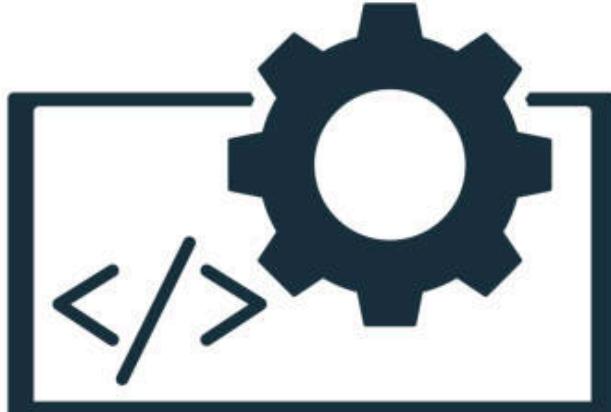
# Implementations



## Front End

- Design User Friendly Interface using HTML, CSS, JS, React
- Implement Responsive design using bootstrap

## Backend



- choose Mongo DB for storing data
- created efficient schema design
- Implement indexing for faster data retrieval
- Implement API gateway for secure API access
  - Flask , swagger
  - Deployment - Docker



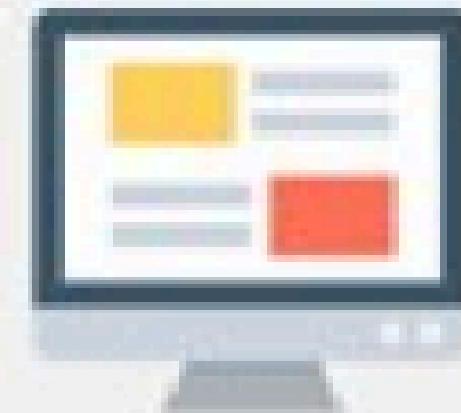
## Database

- NOSQL (MongoDB)

# *Front End Implementation*

- Designed a user-friendly web-Application Interface using HTML, CSS, JavaScript
- Implemented a responsive design for desktop
- Designed Login System
- Used Libraries and Framework like React for Building the frontend

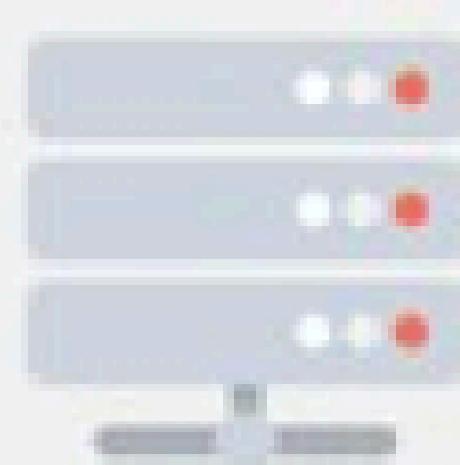
FRONT-END



BACK-END

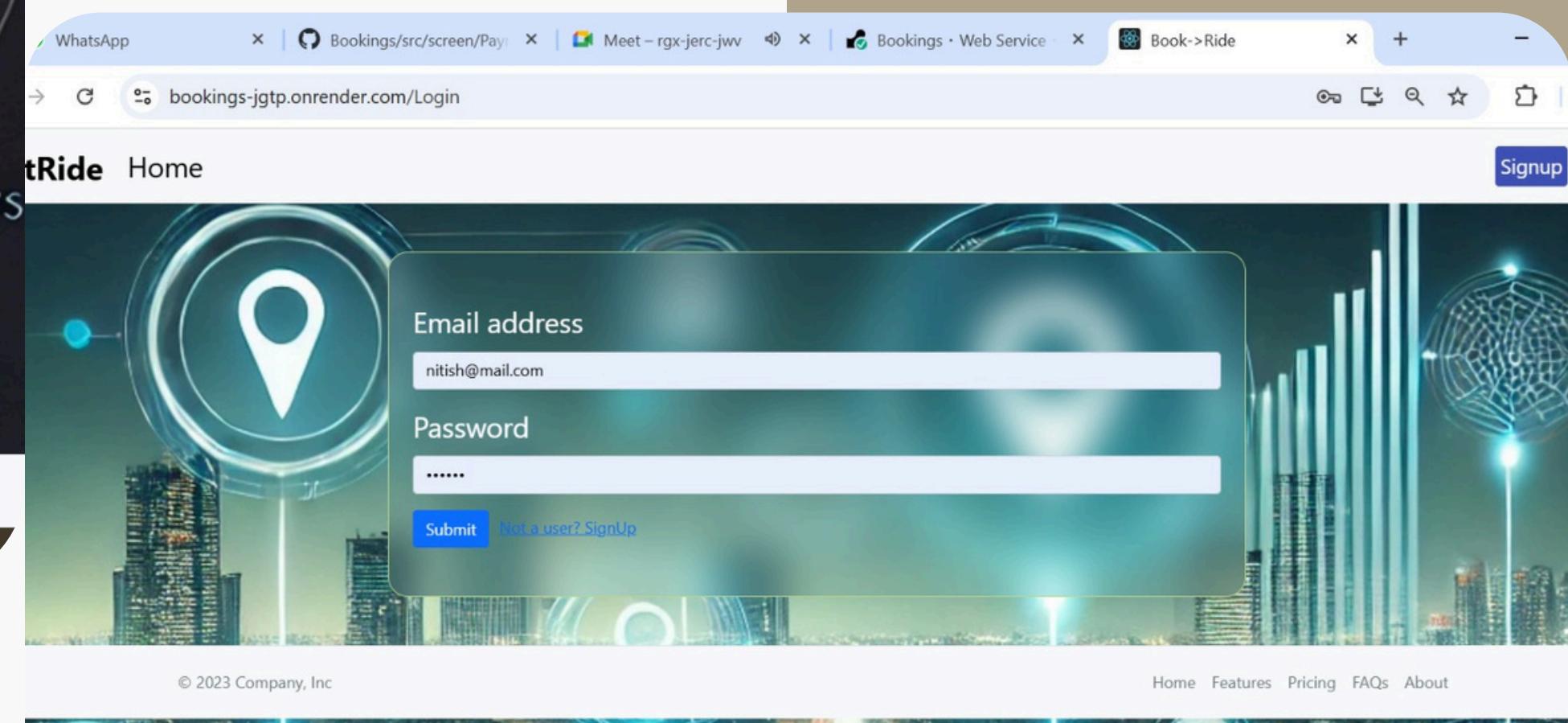
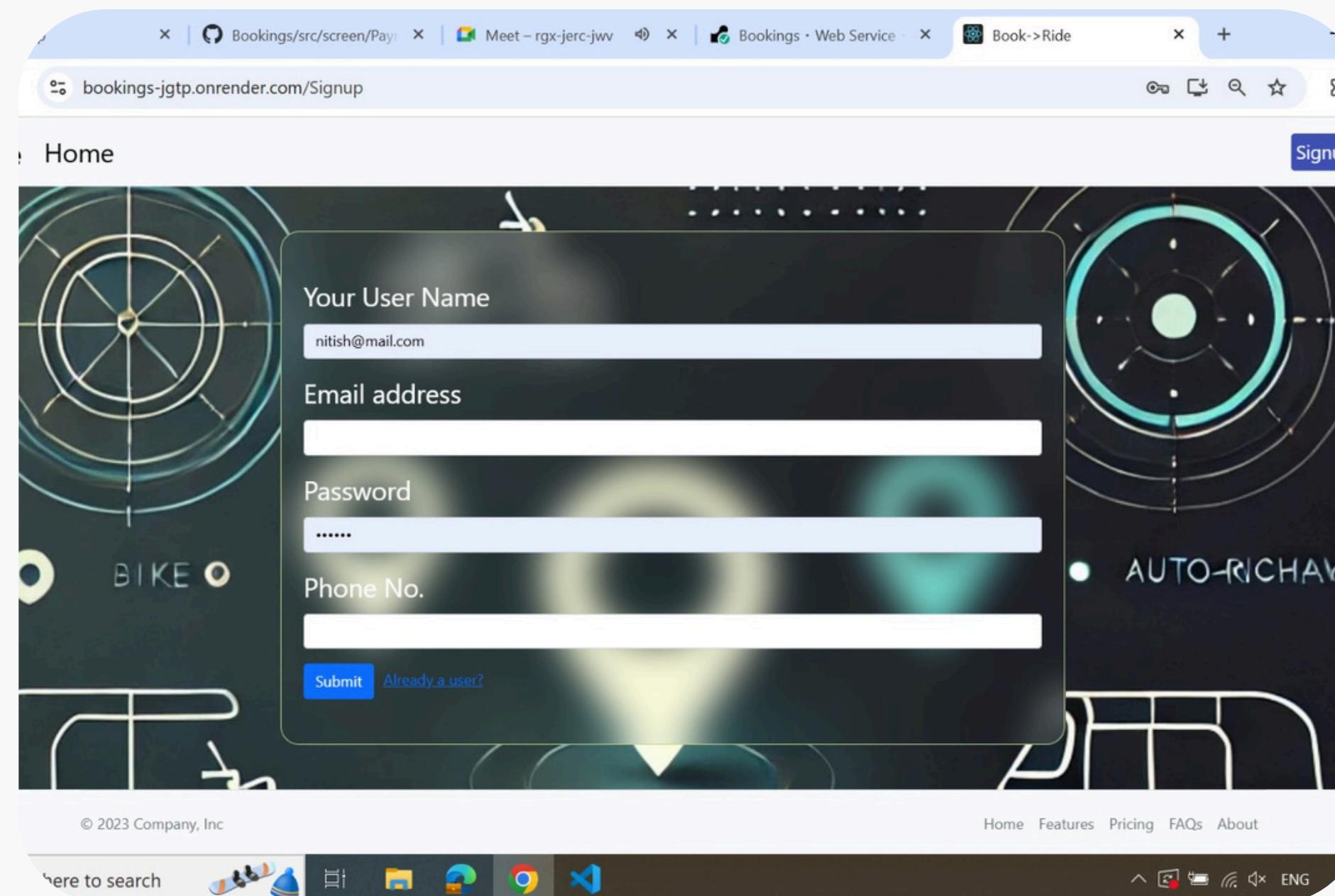


DATABASE



# User Login & Authentication

- Secure User Login and Authentication: Ensure seamless and safe access to your platform with robust user login and authentication protocols.



# Ride Booking

GetRide Home My Trips LOG OUT

Select Source

Select Destination

Book Bike

Get Distance

Distance to be travelled is: 0.00 KM

Get Price

Your Price is :Rs. 0

# Booking Price

The screenshot shows a web browser window with multiple tabs open at the top, including WhatsApp, bookings/src/screen/Pay, Meet - tgx-jerc-jwv, bookings \* Web Service, and BOOK->Ride. The main content area displays a night-time cityscape background. At the top left is the 'GetRide' logo and navigation links for Home and My Trips. On the right is a LOG OUT button. Below the header is a large input field containing three dropdown menus: 'Madiwala', 'HSR Layout', and 'Book MINI'. To the right of these dropdowns is a 'Get Distance' button. A message below the dropdowns states 'Distance to be travelled is: 18.49 KM'. Below this is a 'Get Price' button. The final output is 'Your Price is :Rs. 290.0783367885477' and a 'Book Your Ride' button at the bottom.

WhatsApp | bookings/src/screen/Pay | Meet - tgx-jerc-jwv | bookings \* Web Service | BOOK->Ride

bookings-jgtp.onrender.com

GetRide Home My Trips LOG OUT

Madiwala

HSR Layout

Book MINI

Get Distance

Distance to be travelled is: 18.49 KM

Get Price

Your Price is :Rs. 290.0783367885477

Book Your Ride

# Payment Gateway

GetRide Home My Trips

LOG OUT

Pay with *PayPal*

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 Pay with PayPal

With a PayPal account, you're eligible for Buyer Protection and Rewards.

Email or mobile number  
anshu8877947678@gmail.com

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**Log In**

or

**Pay with Credit or Debit Card**

Pay with debit or credit card

We keep your financial information securely encrypted.

Country/region  
India

Email  
anshu8877947678@gmail.com

Mobile number  
+91

We'll send you an SMS with a security code to confirm this number.



Card number

Expiry date

CVV

Billing address



PayPal is the safer, faster way to pay

No matter where you shop, we keep your financial information more secure.

# Trip Records

GetRide

Home

My Trips

LOG OUT

## MY TRIPS SO FAR

Trip Date	Trip Time	Source	Destination	Trip Price
12/17/2024	10:42:20 AM	Teacher's Colony, Bangalore	New York	Rs.300801.61
12/17/2024	12:41:35 PM	Ecospace, Bengaluru	Whitefield, Bengaluru	Rs.158.73

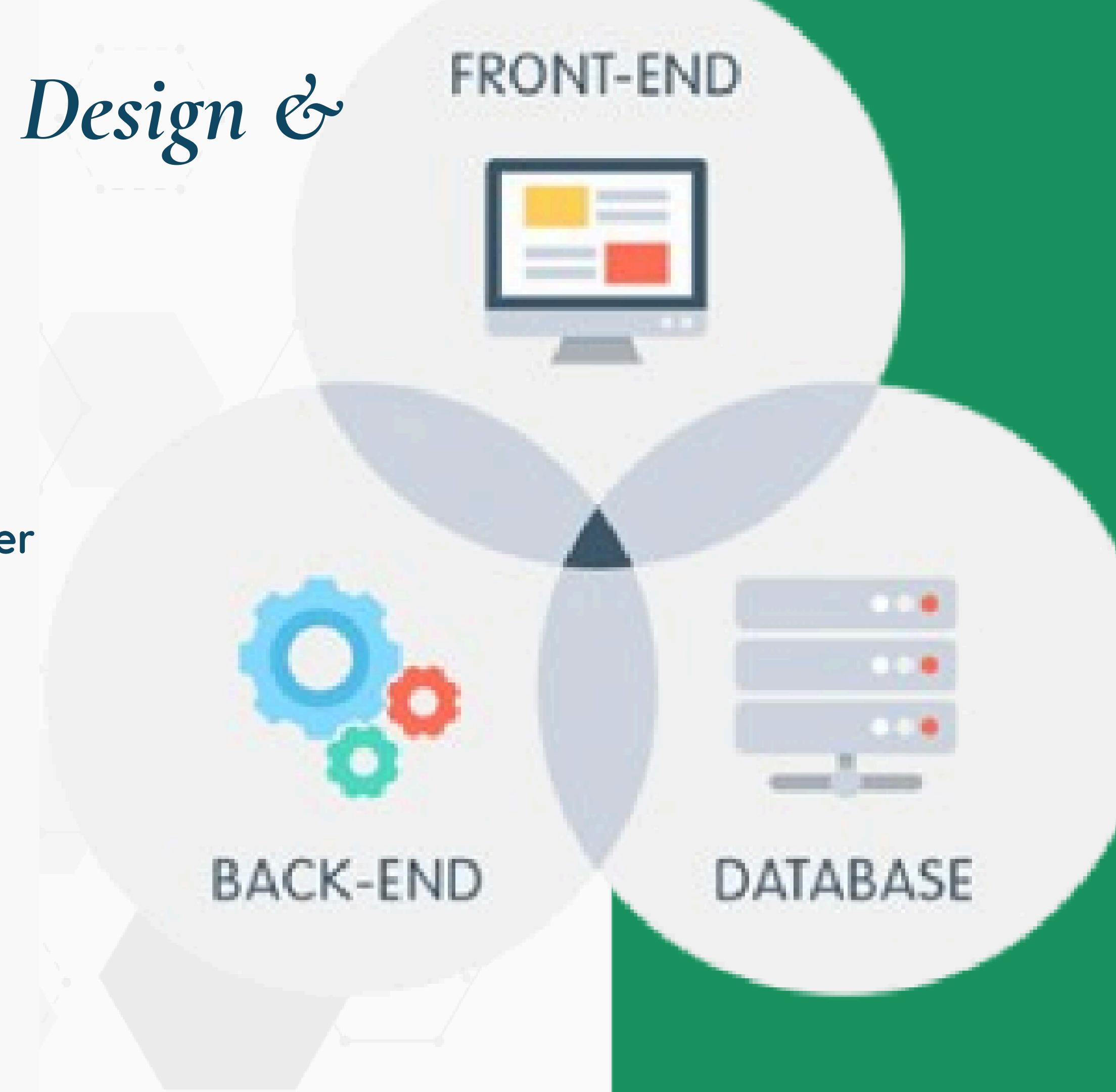
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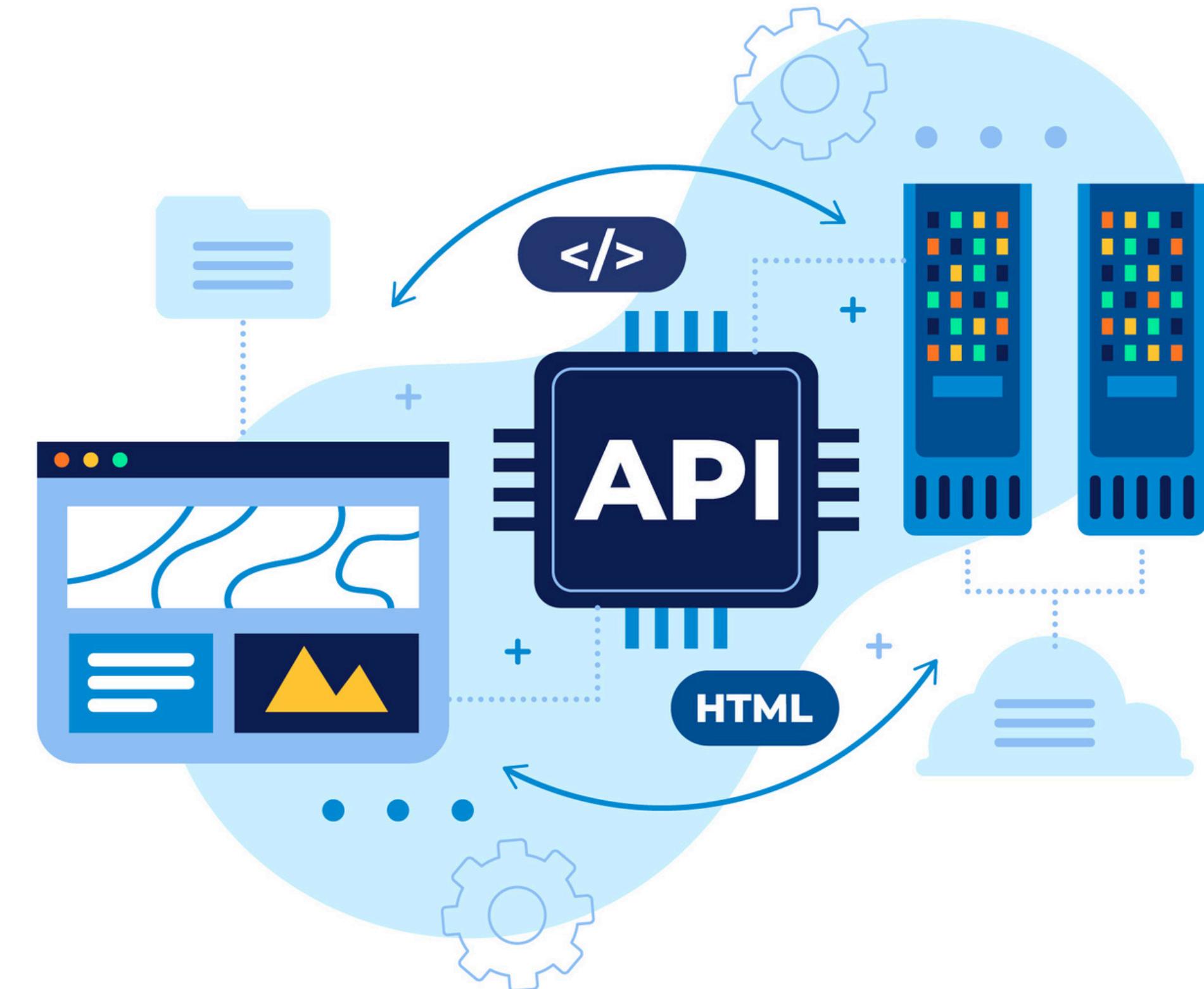
# *Backend Architecture Design & DataBase*

- Choose Database Mongo DB for storing real time User data
- Created an efficient schema for Uber ride Information
- Implemented the Indexing of Database for faster data retrieval
- Implemented an API gateway for Secure API Integration and access



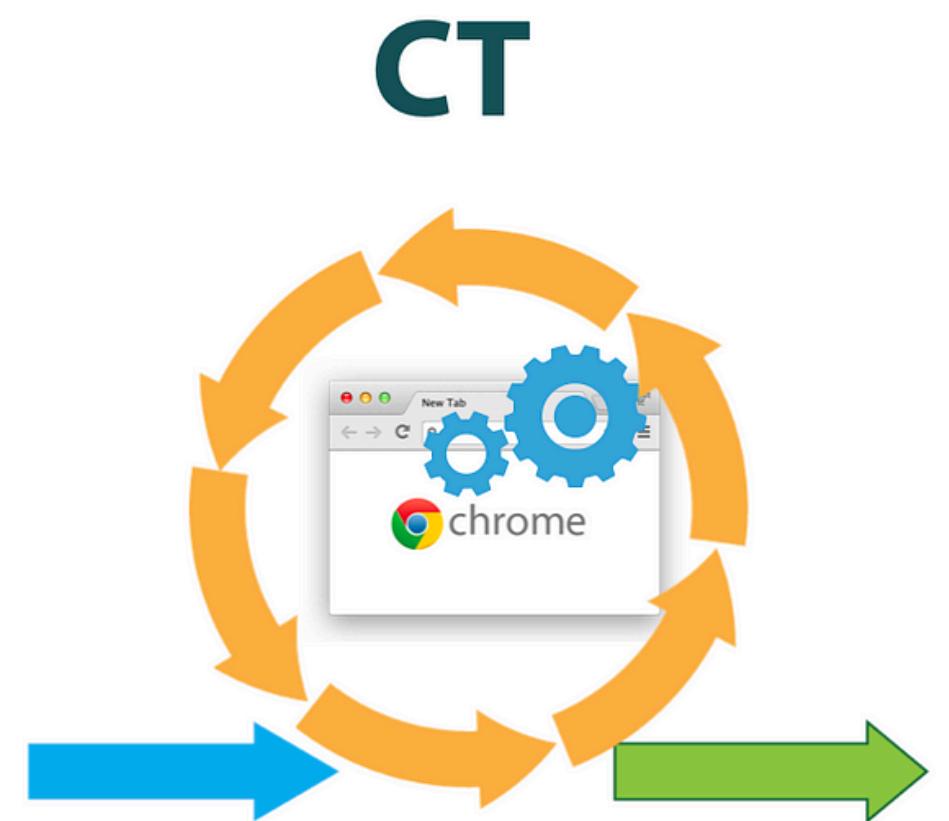
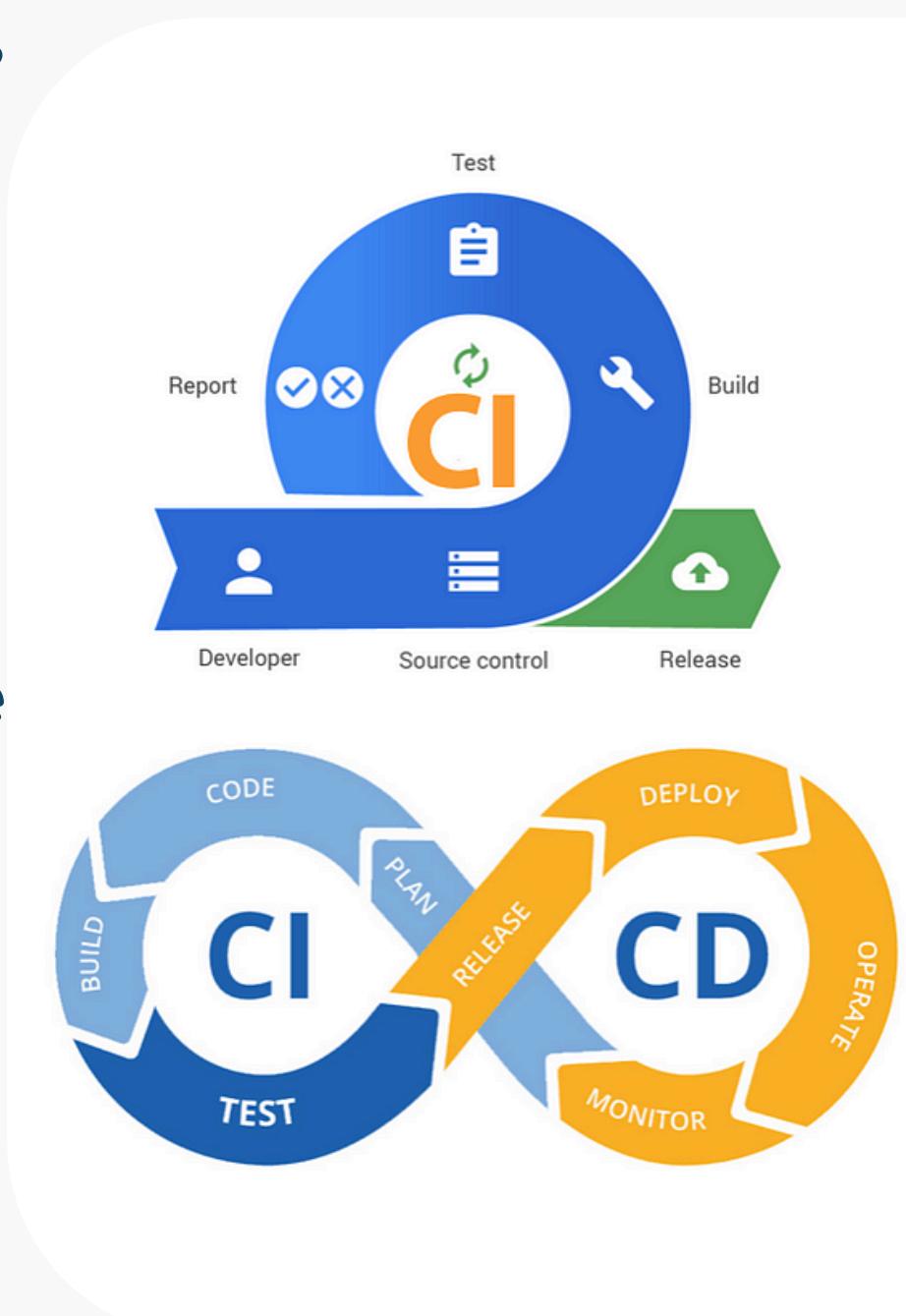
# *API Design & Integration*

- Includes API endpoints, that is request/response formats, and error handling
- Used API Keys and API Authentication for Securing API access
- Designed a RESTful API for data retrieval and manipulation using Flask



# CI/CD Pipelines

- Used GitLab CI/CD to automate build, test, and deployment processes.
- Configured pipelines for testing
- Setup environment-specific deployment stages (dev, staging, production).
- Utilized caching in pipelines to optimize build and test execution times.
- application Used Dockerization for containerization and deployment



# *GitLab Branching*

- Used a CI/CD tool like GitLab CI/CD
- used feature branches for development and testing
- used merge request for code reviews and approval
- used the main branch for production deployment



# Performance Optimization & Security Measures

## For Performance Optimization

- Implemented Code Splitting, lazy loading and efficient state management.
- Optimized API and database queries.
- Used CDNs for static asset delivery.

Monitored real-time performance metrics



## For Security Measures

- Conducted regular Vulnerability assessments.
- Implemented secure coding practices, HTTPS, and proper authentication.
- Kept dependencies updated and used security monitoring tools

## Continuous Monitoring

Set up alert for performance degradation and security issues regular review of logs and security scans in CI/CD pipelines

## Set up for User data Protection

- Implemented encryption into login system for sensitive data at rest.
- In transit followed data protection regulations like GDPR.
- Regular backup and test data recovery procedure

# Challenges Faced

## 1. User Interface (UI) and Experience (UX):

- Challenge: Designing a simple, intuitive, and effective interface for riders is a key challenge.
- Solution: Focus on simplicity, providing helpful on-screen instructions, easy navigation, and considering user feedback to iteratively improve the design.

## 2. Payment Gateway Integration

- Challenge: Integrating secure and reliable payment gateways (e.g., PayPal, Stripe, etc.) to handle transactions efficiently and safely.
- Solution: Choosing a reliable and well-documented payment gateway, ensuring compliance with PCI-DSS standards, and testing the payment flow thoroughly can ensure a smooth payment process.

## 3. Maintaining System Reliability

Utilizing distributed architectures, conducting regular load tests, monitoring system performance

## 4. Data Security and Privacy

Collecting personal and payment information from users strong encryption for data storage and transmission  
location and Mapping

# Conclusion



Our Fullstack Uber booking management system provides a dynamic, real-time solution for ride booking and management. It streamlines operations for riders and drivers, ensuring seamless bookings, efficient ride allocation, and accurate trip management. Designed with scalability, security, and performance at its core, the system ensures fast and reliable processing as user demand grows.





*Thank you*

